Parking Management Pilot Project

DRAFT Evaluation Report

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Sound Transit
Office of Planning and Development
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Executive Summary

The Sound Transit Board of Directors, understanding the difficulty faced by many riders and would-be riders when presented with crowded conditions at park-and-ride lots, instructed staff to implement a pilot project to test various parking management strategies. The purpose of the pilot activities is to increase the number of transit riders per parking stall, improve efficiency in use of transit facilities and services, and improve customer satisfaction. This report summarizes the results to date of the Parking Management Pilot Project, implemented as three separate pilot elements in 2014 and 2015: parking permits, rideshare incentives programs, and real-time parking availability monitoring.

The pilots are being carried out at a handful of high-demand facilities served by each of Sound Transit's modes, throughout the region. The parking permit pilot completed in July 2014, while the other two pilot activities are ongoing in 2015. Thus, the focus of this report at the time of printing is on the parking permit pilot project.

Permit Parking Pilot (February – July 2014)

Parking permits were tested at four facilities, described below:

Location	Parking Spaces	Lot Type	Transit Service
Issaquah Transit Center	819	Structure	ST Express bus, Metro bus
Mukilteo Station	63	Surface	Sounder commuter rail
Sumner Station	343	Surface	Sounder commuter rail, ST Express bus
Tukwila Int'l Blvd Station	600	Surface	Link light rail, Metro bus

The permit pilot offered solo driver and carpool permits at $33 and $5 per quarter, respectively, for two quarters from February through July, 2012. Over 500 people participated in the permit pilot project over its six month implementation, with more than 1,400 submitting permit applications. Approximately 25 percent of the total available spaces at the four facilities was dedicated to permit parking with the balance remaining free and open to the public on a first-come, first served basis. In addition, non-permit holding travelers were able to park in unused permit spaces after 10:00 a.m. on weekdays and at any time on weekends.

The permit pilot findings showed that there is a high level of interest in permitted parking, and a customer willingness to pay for a guaranteed parking space in high demand lots. The findings indicate that under the right circumstances, permits are an effective way to manage demand, improve facility efficiency and increase access for transit customers. While the permit pilot had varying levels of success at the four pilot facilities, staff has collected a great deal of information to inform the design of any future programs.

POLICY CONSIDERATIONS AND NEXT STEPS

Staff will develop a permanent, system-wide parking permit program with the goal of implementation by the opening of the Angle Lake Station in 2016. A number of key program design decisions, including the pricing of permits, will be brought to the Board by the end of the third quarter, 2015.

Before a permit parking program can be implemented, the Board will need to establish pricing and will be asked to confirm a number of policy and program design elements prior to implementation, including:

- Enforcement: Sound Transit does not have legislative authority to issue citations or boot vehicles, which limits the tools available for enforcement to issuing warnings/towing. For full enforcement flexibility, Sound Transit may need to consider seeking legislative change or contracting parking management to a third party.
- Scope: What criteria will be used to select facilities for a permit program? How many parking stalls should be permitted and how many allotted for general use? What is the mix of SOV permits and HOV permits?
- Pricing: How much will permits cost? Will the program be revenue neutral or should it target recovery of additional operating revenue?
- Format and technology: Will permits be provided as hangtags? Will we ask users to register license plate numbers?
- Regional coordination: How will the permit program accommodate coordination of parking management strategies with partner transportation agencies and with local jurisdictions?

Rideshare Collaboration Pilot (September 2014 –)

Two rideshare incentives programs are ongoing:

- The Vanshare Incentives Program offers incentives to riders interested in using a partner agency-provided rideshare vehicle to travel together from their homes to the transit facility. To date, one Vanshare group has formed at Sumner Station. The project began in September 2014 and new participants were accepted through March 31, 2015. Incentives cover the monthly fare for the van for six months and offer a reserved parking space at the desired transit facility.
- The Vanpool Relocation Program offers incentives to existing participants in King County Metro's, Pierce Transit's, or Community Transit's Vanpool programs to transfer meet-up locations from crowded Sound Transit facilities to less crowded park-and-rides. The project began in January 2015 and new participants were accepted through March 31, 2015. The program provides a $50/month incentive for members of the relocated vanpool group for six months. Several vanpool groups have registered for the incentives and have already relocated or will soon relocate to new meet-up parking lots, freeing up parking spaces for transit riders.

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Real-time Parking Availability Information Pilot (May 2015 –)

Real-time availability monitoring is being piloted at Federal Way Transit Center, Puyallup and Auburn Sounder Stations, and South Everett Freeway Station. The monitoring equipment was installed early 2015 and real-time information will be available for customers via the Sound Transit website in May of 2015. Three technologies are being tested for this pilot: ultrasonic directional sensors, magnetic loop detectors, and individual space monitors. Ultrasonic sensors and magnetic loops are installed at vehicle entrances and exits and keep a running tally of facility occupancy through counts of ins and outs, while individual space monitors are installed in the pavement of each parking space and detect vehicles when present.

The rideshare collaboration and real-time parking availability monitoring pilots will be evaluated later in 2015 following completion of the programs.

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1 Introduction

This report summarizes the results of the Parking Management Pilot Project, implemented as three separate pilot elements in 2014 and 2015. The three pilot activities are:

- Parking permits, tested at Mukilteo Station, Issaquah Transit Center, Tukwila International Boulevard Station, and Sumner Station from February through July, 2014;
- Rideshare incentives programs, tested at South Everett Freeway Station, Overlake Transit Center, Federal Way Transit Center, Sumner Station, and other locations beginning in September 2014 and continuing into 2015; and
- Real-time parking availability monitoring, tested at South Everett Freeway Station, Federal Way Transit Center, Auburn Station, and Puyallup Station in 2015.

The goals of each pilot element are to ***increase the number of transit riders per parking stall***, ***improve efficiency*** in use of transit facilities and services, and ***improve customer satisfaction***.

The overall objective of the parking management pilot project is to evaluate parking management strategies for their suitability for more wide-scale application across Sound Transit's system. The goals of each pilot element are to increase the number of transit riders per parking stall, improve efficiency in use of transit facilities and services, and improve customer satisfaction.

This report includes background information on the work leading up to the implementation of the pilot project, evaluates data collected prior to and during pilot implementation, presents analyses of the data, and presents recommendations for future actions that the Board of Directors may wish to consider.

2 Background

2.1 The parking and transit access landscape

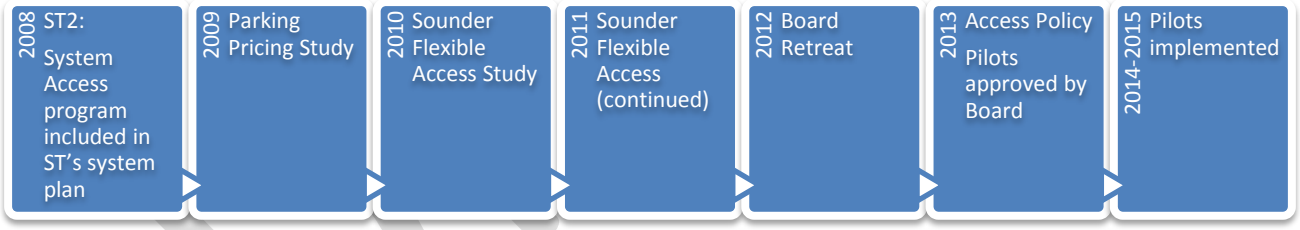
Sound Transit maintains 30 parking lots in support of its rail and express bus services, comprising about 14,000 parking spaces, with a few thousand additional co-managed spaces. Nearly 90 percent of these spaces are used each day, and many lots fill to capacity early in the morning commute. Parking and access issues dominate conversations with stakeholders about current operations and future system improvements. The perception of scarce parking frustrates riders, affects surrounding jurisdictions, and may constrain transit ridership and increase single occupant vehicle miles traveled. High parking demand is not, however, a new issue for Sound Transit. Some of the park-and-ride lots on the Sounder South line, for example, have been filling to capacity on a daily basis for the past several years. While providing free parking for transit customers is often a way for transit agencies to encourage transit ridership in the early years of a new line opening, it can lose utility for customers after it reaches capacity, and can be perceived as a barrier to new riders. In light of these issues, the Sound Transit Board directed staff to look at ways to improve access to parking facilities for transit customers.

It is also important to note that looking at access to transit as only a parking issue discounts the importance of other modes of access to overall transit ridership. According to an origin-destination study conducted on board Sound Transit buses and trains in 2011-2012, just over one third of customers coming from home stated using park-and-ride as their trip access mode. The other modes of access include walking and cycling, local feeder transit service (including private shuttles), rideshare services such as King County Metro's VanShare program, and passenger drop off (also known as kiss-and-ride). These access modes account for the remaining two thirds of Sound Transit customers accessing the system each day, and thus must be given consideration when determining how to address barriers to accessing Sound Transit's network of services.

2.2 Sound Transit access-related projects

Figure 1 outlines the major milestones and efforts leading to the implementation of the Parking Management Pilot Project. In its 2008 system plan, Sound Transit 2 (ST2), Sound Transit included a System Access program that would have funded access projects, such as pedestrian improvements, additional bus/transfer facilities, additional on-site and satellite parking, bicycle access and storage, and new/expanded drop-off areas. Due to the recession and subsequent realignment of ST2 projects, the System Access program was de-funded, although a handful of system access-related projects were sustained. A Parking Pricing Study was conducted in 2009-10, which focused on Sounder south line stations and recommended a site-specific and phased approach to implementing both daily and monthly parking fees. In 2010 Sound Transit commenced the Sounder Flexible Access Study, focusing on select Sounder stations on both lines. That study recommended a suite of potential access improvements for each of the seven stations included in the study and concluded in 2012.

Figure 1. Timeline of Sound Transit access/parking efforts



In April of 2012, the Board held a retreat to discuss and provide direction to staff on two important and related topics: system access and transit-oriented development (TOD). At the conclusion of the retreat, the Board directed staff to update the agency's parking policy and to develop a pilot project to test new parking management strategies. Through the following year, staff worked with internal and external stakeholders to update the agency's parking policy. The Board adopted the System Access Policy (R2013-03), which superseded the agency's previous parking policy, in March of 2013.

Also in 2013, following on the work of the Sounder Flexible Access Study, staff began work to develop a package of bicycle, pedestrian, traffic, and parking improvements for Sumner and Puyallup Stations on Sounder's south line. In addition to leading to the selection of a preferred package of improvements for each station area, this project provided a framework for working with stakeholders to develop solutions that benefit Sound Transit customers and the communities in which Sound Transit facilities are located.

2.3 Related external projects

In addition to the access-related work within the agency, Sound Transit's partners have simultaneously undertaken access research and projects. The Washington State Department of Transportation (WSDOT) compiled data about the majority of Puget Sound park-and-ride locations into a regional park-and-ride inventory map, last updated in fall 2013. In 2014, WSDOT completed a study of park-and-ride efficiency in coordination with King County Metro and Sound Transit, evaluating usage patterns and rider preferences at 17 of the region's largest park-and-ride facilities. Also in 2014, King County Metro completed a non-motorized connectivity study in coordination with Sound Transit. This study developed a tool to evaluate the potential transit ridership impact of pedestrian and bicycle connectivity improvements around transit stops and stations.

3 Pilot Project Development Process

A specified goal of the Board retreat discussion was coordination with partner transit agencies and WSDOT (all owners of public park-and-ride lots). Thus, concurrently with the development of the revised access policy, staff convened a multi-agency working group to further develop and refine the pilot project ideas generated at the Board retreat. With additional support from multiple internal departments, staff developed the Parking Management Pilot Project, which was approved by the Board in July 2013 and funded in the 2014 Budget. Staff began implementing pilot activities late in 2013.

3.1 Site selection

Staff created a site-selection matrix of Sound Transit's facilities by subarea, and used the following criteria to select sites.

Sound Transit staff considered facilities where:

- Parking lots/garages reach 90+ percent full on weekdays by the end of morning rush hour.
- Sound Transit operates the facility and can make needed changes/alterations, e.g., add signage, pavement markings, and install equipment, under existing authority.
- There is room on existing transit serving each facility for more riders on morning peak service.
- Leadership and staff of the host jurisdiction and/or other transit agencies serving the facility were willing partners in the pilot project effort.

Additional factors considered:

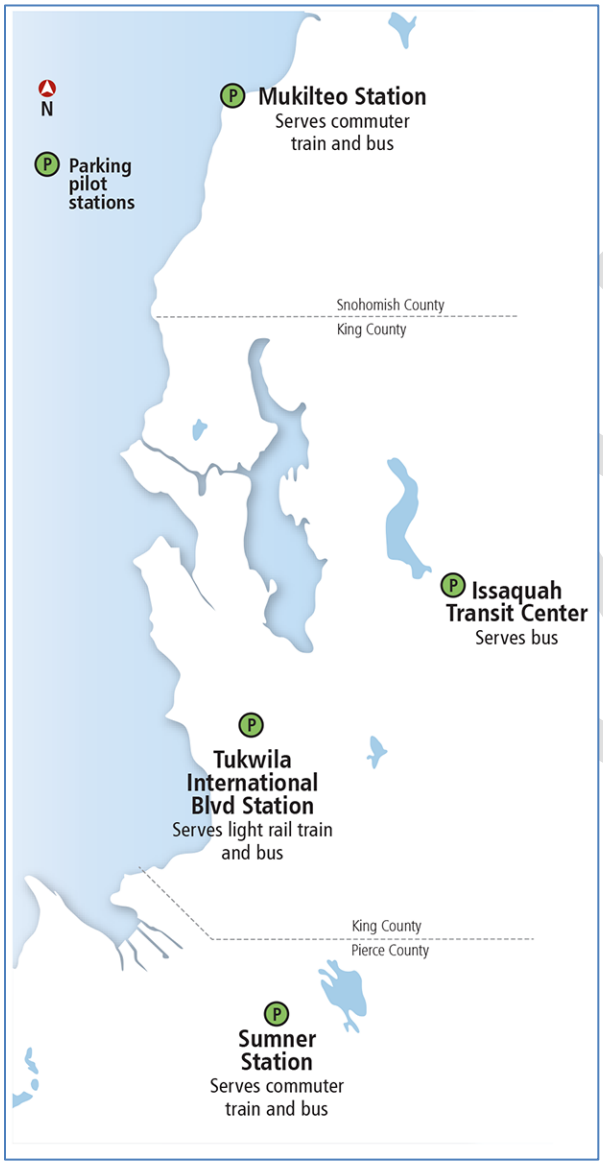
- Modal coverage: Each of Sound Transit's service modes were covered by a pilot facility: Link light rail, Sounder Commuter rail, and ST Express bus.
- Geographic coverage: Pilot sites are located throughout the Sound Transit district.
- Parking facility type coverage: Station-adjacent surface lots, garages, and satellite lots were included.
- Other activities that might impact pilot results: Sites with scheduled construction or other known imminent changes were avoided.

The number of facilities selected was based on staff's capacity to implement the pilot activities given current staffing levels and work duties. No additional staff were hired to carry out the pilot projects.

3.2 Implementation

Executive sponsorship of the pilot project came from the Planning, Environment and Project Development (PEPD) Department and overall implementation responsibilities rested within the Research, Policy, and Business Development division within PEPD's Office of Planning and Development. Directors from PEPD, Operations, and Information Technology comprised the project Steering Committee, which guided work throughout the pilot implementation process. Staff in the same departments were responsible for implementing each pilot element according to a project charter approved by the Steering Committee and Executive Sponsor.

Figure 2. Permit pilot locations



The remaining sections of this report describe the pilot elements in more detail, summarize data collected, and provide an evaluation of the activities and next steps.

4 Permit Parking Pilot

4.1 Project description

Permit parking was tested at four Sound Transit facilities from February through July, 2014. A map of the four facilities is shown in Figure 2. There are two King County locations, one in Snohomish County, and one in Pierce County. Each of Sound Transit's modes serves one or more of the facilities: Sounder at Mukilteo and Sumner Stations, ST Express at Issaquah Transit Center and Sumner Station, and Link at Tukwila International Boulevard Station (TIBS).

A combination of Single Occupant Vehicle (SOV) and High Occupant Vehicle (HOV) permits were made available for up to forty percent of the spaces at each of the facilities, based on demand. SOV permits cost $33 per quarter, while HOV permits cost $5 per quarter. The prices were set at levels to incentivize carpooling and to recover the estimated administrative cost of conducting the pilot, not to test market rates.

Applicants were expected to possess a valid "One Regional Card for All" (ORCA), the regional transit fare card. In order to provide proof of transit ridership, applicants were asked to provide their ORCA number during the application process and grant ST permission to review ORCA ridership history. To apply for an HOV permit, a minimum of two qualifying transit riders applied in one application. Eligibility was defined as the customer(s) having an average of three rides per week from the facility for which the permit was being requested for a period of three months prior to applying.

PERMIT PARKING PILOT

Pilot conducted:
February 1 – July 31, 2014

Permit cost:
$33/quarter for SOV
$5/quarter for HOV (2+)

Permits required:
6 a.m. – 10 a.m., Mon-Fri

The application process was completed via an online application form. Once the customer's information was received, staff checked the ridership history associated with the ORCA number(s) provided, and if approved, emailed the customer with a link to a third-party payment website to complete the transaction. Once payment confirmation was received, staff assigned and mailed a permit to the customer. The permits were printed on heavy-duty plastic cardstock intended to be hung from the vehicle's rear-view mirror (Figure 3).

Figure 3. Parking Permit

Customers who purchased permits during the first quarter of the pilot (February-April, 2014) were given the option to renew their permit for a second quarter at the same rate. First-time customers were also accepted in the second quarter on a space-available basis. Staff reviewed first quarter permit holders' ORCA records, and either sent an email explaining that the permit would not be renewed due to lack of ridership for the previous three months, or sent an email with a link to the third-party payment site. After payment was received, customers were mailed a holographic sticker to be applied to the permit in order to validate it for the second quarter of the pilot. The stickers were pre-applied for first-time customers purchasing permits for the second quarter.

Permit enforcement was conducted daily by Sound Transit Security officers. Permits were required from 6:00 a.m. – 10:00 a.m. Monday through Friday; after 10:00 a.m. the spaces were available for general parking. Permit areas in each lot were designated through a combination of signage and pavement markings. On the first offense, vehicles parked in violation of the permit restrictions were issued warning notices. On the second offense or after, vehicles were subject to towing at the owner's risk and expense.

4.2 Findings

4.2.1 Permit sales

Table 1 provides a summary of permit applications received and permits issued over both quarters of the pilot, the percent of applications that were approved, and the renewal rate for first quarter permit holders. With nearly three times as many applications received as there were permits issued, it is clear that demand exists for a permit product. Of the two types of permits, demand was much higher for SOV permits by nearly seven to one. Denials of permit applications were due to applicants not qualifying based on the ridership history required to obtain a permit. Two exceptions were Sumner and Mukilteo SOV permits, which sold out soon after the applications opened, so denials were based on lack of supply rather than qualifications. Because of this, the number of applications listed in Table 1 for Mukilteo and Sumner SOV permits is not an accurate reflection of the overall demand for permits at those locations, because after the permits sold out, applications for SOV permits for those two locations were closed. Based on customer inquiries, it is likely that many more applications for those two locations (Sumner in particular) would have been received.

Table 1. Permit sales summary

Location and permit type	Applications received	Permits issued	Percent of applications approved	Renewal rate
Issaquah SOV	321	166	52%	63%
Issaquah HOV	22	8	36%	75%
Mukilteo SOV	33	13	39%	75%
Mukilteo HOV	4	1	25%	100%
Sumner SOV	302	104	34%	89%
Sumner HOV	70	39	56%	92%
TIBS SOV	589	176	30%	71%
TIBS HOV	86	8	9%	29%
Total	**1,427**	**515**	**36%**	**81%**

4.2.2 Customer reactions

News of the permit pilot first broke in the summer of 2012 after the Board discussed parking management strategies at their April retreat, after which customer comments about charging for parking began arriving. Additional waves of customer comments have come in at key milestones of the project: after Board approval of the pilot project in summer 2013, when pre-sales advertising began in late 2013, and when the pilot commenced in February 2014. In all public materials about the parking pilot project, including the Sound Transit website, customers were directed to a dedicated e-mail address (parking@soundtransit.org) as well as the general customer service telephone number for feedback.

The majority of comments prior to the start of the pilot expressed disagreement with the concept of charging for parking. Once the pilot started, comments were more focused on questions about or

critiques of how the pilot was administered. Of more than 650 customer communications received (primarily email) about parking permits, the vast majority (63 percent) were questions about the permit pilot or its administration, in particular about how eligibility was determined. About one quarter were complaints about the pilot. Three other comment types were evenly split among the remaining 12 percent: general support of parking permits/paid parking; general opposition to parking permits/paid parking, and suggestions about how to better manage parking. Comment type by location (when specified by the customer) is shown in Table 2. A compilation of the comments is available under separate cover. For reference, Sound Transit Customer Service fields about 3,300 inquiries and comments via email and telephone each month.

Table 2. Number and type of customer comments by location

Comment Type	Location					Total
	Issaquah TC	Mukilteo Station	Sumner Station	Tukwila Int'l Blvd	None specified	
Inquiry about permit pilot/procedures	51	9	104	115	130	409
Complaint about pilot implementation	24	11	56	45	30	166
Suggestion on parking management	3	1	7	7	11	29
Supports parking permits/ paid parking	3		12	2	10	27
Opposes parking permits/ paid parking	2		5	1	15	23
Total	**83**	**21**	**184**	**170**	**196**	**654**

In addition to unsolicited customer comments, Sound Transit hosted two web-based surveys. Selected results are presented here, and full survey summary reports can be found in Appendices A and B, respectively.

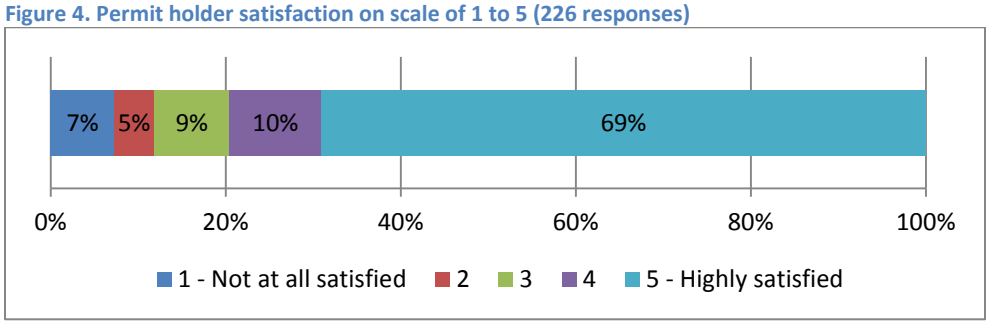
Mid-point survey

The first survey was conducted during the second quarter of the pilot, the audience for which was permit holders (including those who did not renew for the second quarter). Of 570 invited, 226 responded to the mid-point survey – a response rate of 40 percent.

Satisfaction with permit pilot

When asked to rate their satisfaction with the permit pilot on a scale of one to five, five being highest, nearly seven of ten respondents gave a score of five, and the median score for all respondents was 4.3. Seven percent of respondents (16 people) gave a score of one, indicating "Not at all satisfied."

Figure 4. Permit holder satisfaction on scale of 1 to 5 (226 responses)



Primary benefit of permit

Permit pilot participants were asked to identify the primary benefit of having a permit. At three of the four locations – Mukilteo Station, Tukwila International Boulevard Station, and Sumner Station, a majority of respondents listed "Certainty of finding a space" as the primary benefit. At Issaquah Transit Center, a plurality chose "Access to preferred parking" as the primary benefit of the permit pilot.

Customer-suggested changes to permit pilot

When asked what permit participants would change about the pilot program (with multiple responses allowed), from eligibility criteria to the application process, signage, pricing, and other items, no clear problem areas arose. Interestingly, the highest ranked change that customers desired was "Make permit valid at multiple facilities," with one quarter of the respondents choosing this as a change they would suggest.

Follow-up survey

The second customer survey was conducted a few months after the permit pilot concluded. The audience for the follow-up survey included all those who applied for permits (including those who were not issued permits), those who contacted Sound Transit by email regarding the permit pilot, and those who registered for email alerts about parking policy. Of approximately 1500 people invited to take the survey, 224 former permit holders and 155 non-permit holders completed the survey (25 percent response rate).

A majority of permit-holders stated that they arrived to the facility later during the pilot, while more than four in ten non-permit holders stated that they arrived earlier.

Behavior change

The survey asked respondents about behavior change during the permit pilot. Multiple responses were allowed. A majority of permit-holders stated that they arrived to the facility later during the pilot, while more than four in ten non-permit holders stated that they arrived earlier. No other behavior change garnered more than fifteen percent of permit-holder responses, but about one in five non-permit holders listed parking on the street and not using transit as changes they made during the pilot. Figure 5 shows the relative percentages of each behavior change stated by the two groups of respondents.

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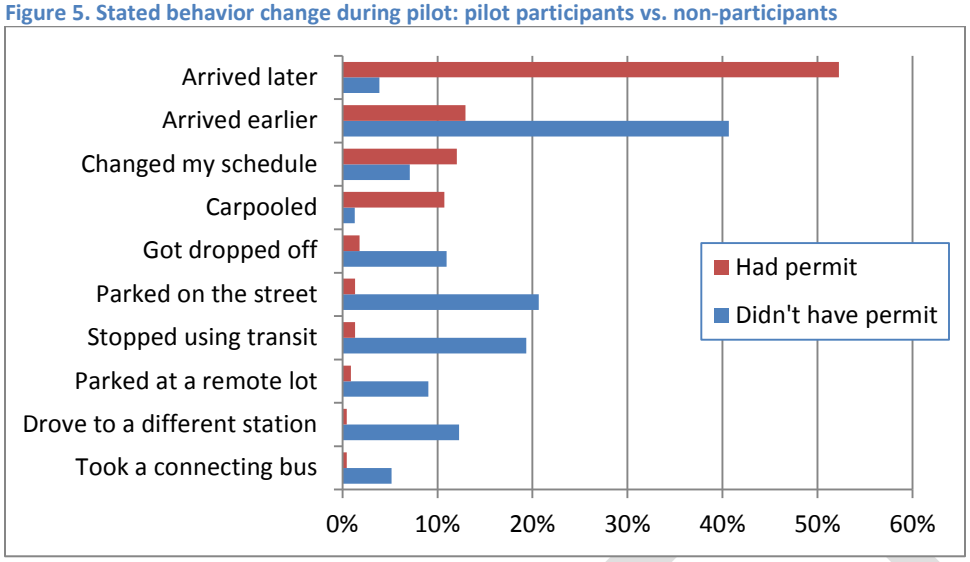
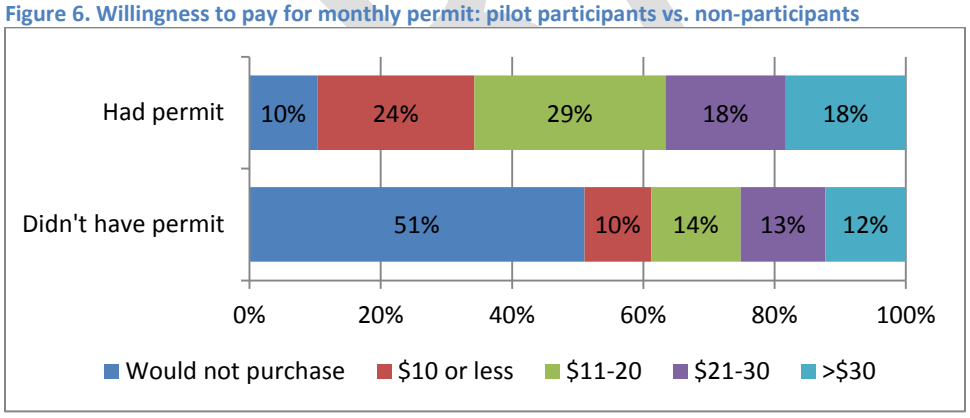
Figure 5. Stated behavior change during pilot: pilot participants vs. non-participants



Willingness to pay

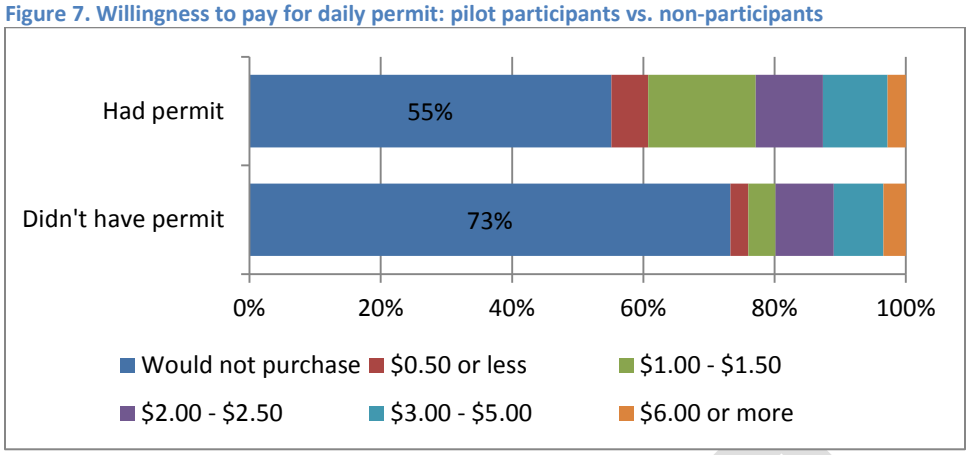
Figure 6 shows pilot participant and non-participant responses to the question: "What would you be willing to pay per month for a reserved parking space at this facility?" More than half of non-participants responded that they would not purchase a monthly permit, while about one in ten former permit holders selected this option. Interestingly, about 34 percent of former permit-holders stated they would not pay more than $10/month for a permit , even though 86 percent of those respondents were SOV-permit holders, meaning they had already paid $11/month ($33/quarter) to participate in the pilot. This result highlights the important distinction between stated preference and actual behavior.

Figure 6. Willingness to pay for monthly permit: pilot participants vs. non-participants



Respondents were also asked what they would be willing to pay for daily parking. As shown in Figure 7, more than half of former permit holders (55 percent) and nearly three-quarters of non-permit holders (73 percent) stated that they would not purchase daily parking. The remaining respondents listed amounts from $0.25 per day to upwards of $6 per day. Since most of the survey respondents are fairly frequent riders (86 percent stated riding at least three days per week on average), it is not surprising that relatively few would consider purchasing daily parking.

Figure 7. Willingness to pay for daily permit: pilot participants vs. non-participants



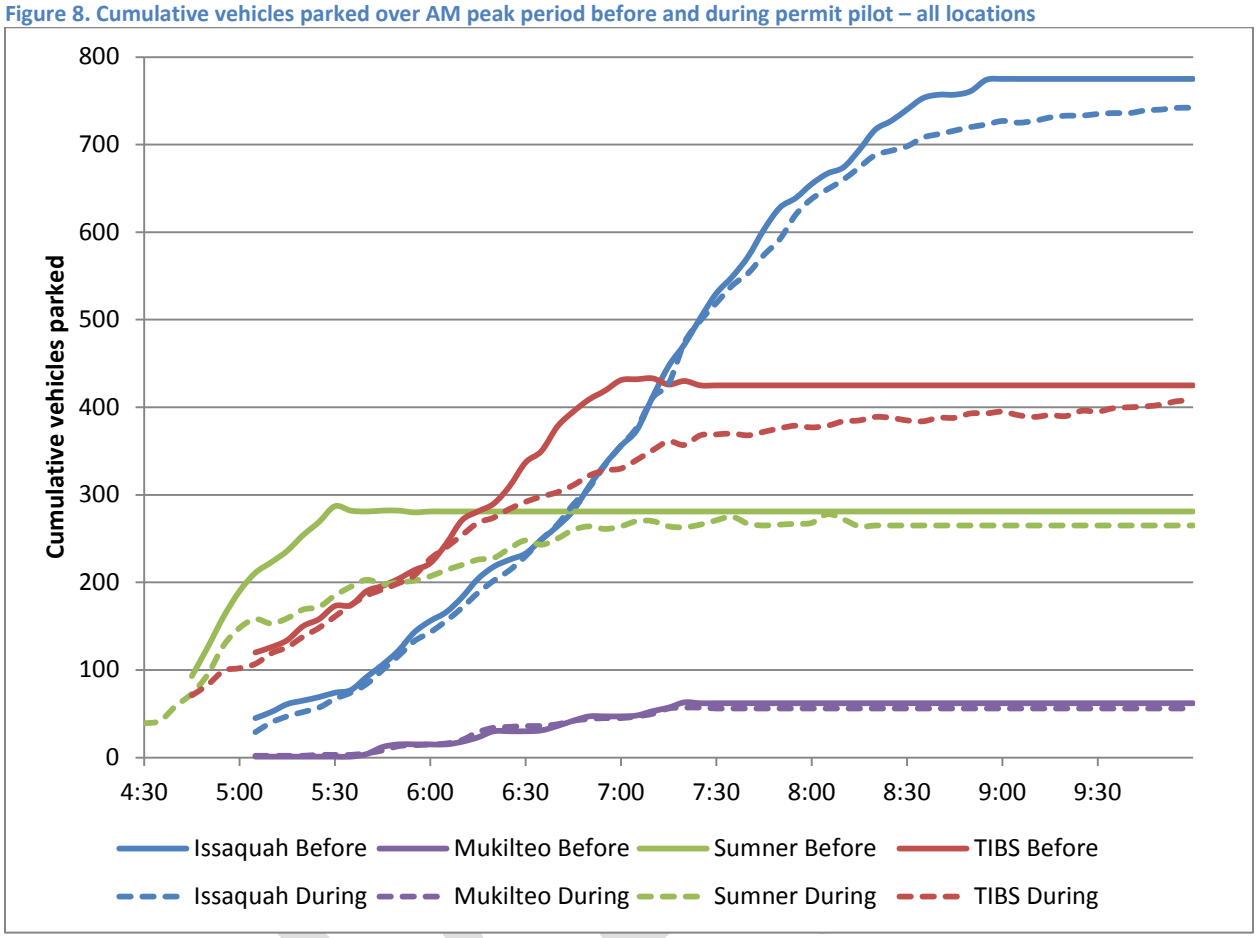
4.2.3 Parking utilization

Arrival time

Prior to the beginning of the permit pilot, staff performed mid-week counts to collect data on vehicle arrival times and passenger occupancy of vehicles arriving at each pilot facility. These were then compared to counts taken during the pilot to evaluate whether permits had an effect on customer behavior. Figure 8 plots all of the vehicle arrival data in one chart, with solid lines displaying the "before data and dashed lines displaying "during data."

In all cases, the total number of vehicles parking during the morning peak period was lower during the pilot than before because spaces were reserved at a ratio of one space per permit holder, but not all permit holders used the facility every day. In Issaquah and Mukilteo, the arrival pattern did not change significantly before and during the pilot. In Sumner and Tukwila, however, the presence of permits clearly affects the arrival pattern. Prior to the permit pilot, these two locations had relatively steep arrival curves followed by a plateau starting relatively early in the morning once the lot filled to capacity, indicating that arrivals were concentrated over a relatively short period – much shorter than the typical morning peak period of demand for transit service. With permits in place, there was a steadier stream of vehicles entering and parking later into the morning peak period, as shown by the more gradual arrival curve.

Figure 8. Cumulative vehicles parked over AM peak period before and during permit pilot – all locations



Vehicle occupancy

One of the primary goals of the pilot project was to increase the number of transit riders per parked vehicle at each of the pilot facilities. Using occupancy data from the morning vehicle counts described above, staff was also able to determine what change, if any, was observed during the permit pilot. Table 3 shows the number of transit riders observed per parked vehicle before and during the permit pilot for each location. A value of 1.00 means that one transit rider is associated with each parked vehicle. This does not mean, however, that each parked vehicle carried one transit rider. It could be (and most likely was) a combination of carpool-to-transit and non-transit activity. Values above 1.00 indicate carpool-to-transit activity, while values below 1.00 indicate non-transit use of the facility.

Three of the four locations had more transit riders per parked vehicle during the pilot than before, while Mukilteo Station's figure decreased slightly. The changes at Issaquah and Tukwila International Boulevard Station were not large in magnitude (0.02 and 0.03 additional riders per parked vehicle, respectively), but at Sumner Station, 0.17 additional transit riders were accommodated per parked vehicle during the pilot. Given the number of vehicles parked on the day of data collection, this adds up to about 45 additional transit riders.

Table 3. Transit riders per parked vehicle

Location	Before	During	Change
Issaquah Transit Center	1.00	1.02	+ 0.02
Mukilteo Station	1.08	1.07	- 0.01
Sumner Station	0.88	1.05	+ 0.17
Tukwila Int'l Blvd Station	1.11	1.14	+ 0.03

Drop-offs (kiss & ride)

Passenger drop-off activity was also measured to determine if the presence of permits was related to any changes in drop-off rates. At the two Sounder Stations, drop off rates increased during the pilot. Mukilteo Station saw more than three times as many drop offs during the pilot as before, while Sumner's rate of drop off was 60 percent higher than before the permit pilot. Issaquah Transit Center and Tukwila International Boulevard Station both had fewer drop offs observed during the pilot compared to before the start of the pilot, but by a much smaller margin (<15 percent) than the locations that saw increases. In general, these four facilities have a drop off rate of 7-14 percent, so changes of the magnitude observed at the Sounder Stations can have an important impact on overall mode share, assuming that those who switched to the drop-off mode had been previously driving alone and parking.

Permit utilization

Sound Transit Security officers monitored each pilot facility daily in order to enforce restricted permit areas. While on site, Security staff counted the number of permitted vehicles present at the time of enforcement, typically between 7:30 a.m. and 9:30 a.m. This provided valuable data about daily permit use.

Table 4 summarizes these observations. Since the data were collected throughout the morning peak period, additional permitted vehicles may have arrived after the counts were taken. Only those counts taken after 8:45 a.m. were used in these calculations, when most vehicles had already arrived for the day. Overall permit use averaged between 48 and 73 percent, with maximum use of 69 to 87 percent for the larger facilities and 100 percent at Mukilteo Station (12 SOV permits and 1 HOV permit issued).

Table 4. Average and Maximum Daily Permit Utilization

		SOV	HOV	Overall
Issaquah	Average	60%	62%	60%
	Maximum	68%	100%	69%
Mukilteo	Average	51%	13%	48%
	Maximum	100%	100%	100%
Sumner	Average	74%	71%	73%
	Maximum	88%	86%	87%
TIBS	Average	62%	42%	61%
	Maximum	83%	100%	83%

Shown another way, Figure 9 below shows a relative frequency chart for permit utilization observations. As shown in the chart, Issaquah Transit Center and TIBS had the largest proportion of observations in the 51-60 percent utilization range. For Mukilteo Station, the most frequent observation was in the 61-70 percent occupied range, and for Sumner Station, it was in the 71-80 percent range. These statistics indicate the frequency with which permit holders were using the facility, which in turn implies the rate at which permits could be oversold, should a permit program be implemented in the future. For high utilization locations like Sumner Station, a starting oversell rate might be approximately 20 percent, or in other words, 6 permits sold for every 5 permitted spaces. For locations like TIBS and Issaquah, a more aggressive oversell rate might be appropriate. An important takeaway from these observations, however, is that the utilization profile for each station is different, implying a station-specific approach may be necessary in developing future programs.

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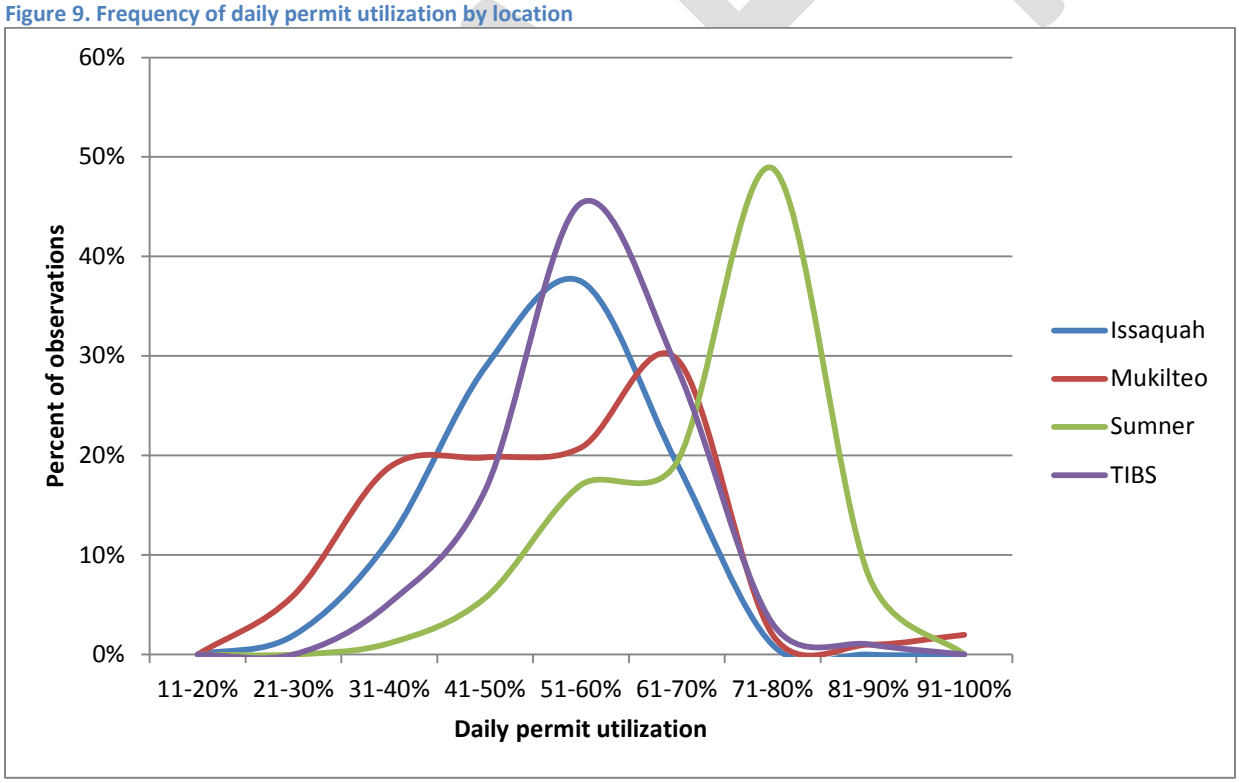
Figure 9. Frequency of daily permit utilization by location



4.2.4 Impacts on nearby facilities

In addition to the pilot facilities, data were collected at park-and-ride facilities near the pilot locations and reviewed for any notable changes during or after the pilot. Table 5 displays average quarterly occupancy at the pilot and nearby facilities from two quarters prior to the pilot through one quarter

following the end of the pilot period. Nearby facilities with greater than 95 percent average occupancy during the period were not included in the table, as they did not have capacity to accommodate spillover effects from the permit pilot.

Issaquah Transit Center is located across the street from a King County Metro park-and-ride adjacent to Tibbetts Park. This 170-stall lot did see increased utilization during the pilot compared to before, but use continued to grow after the conclusion of the pilot, likely due to changes to King County Metro routes serving Issaquah. Interestingly, the Issaquah Highlands Park-and-Ride saw *decreases* in utilization during the permit pilot compared to before and after.

Burien Transit Center, located about two and a half miles west of Tukwila International Boulevard Station (TIBS), experienced an increase in utilization both quarters of the pilot compared to before and after. However, it is unclear if this was caused by the permit pilot or simply a coincidence. Of more than 100 TIBS respondents to the follow-up survey, only two people listed the Burien Transit Center as an alternative used when the customer could not find parking at TIBS.

Table 5. Average midday occupancy permit pilot and nearby facilities

			Pilot Period		
Location	Aug-Oct 2013	Nov 2013-Jan 2014	Feb-Apr 2014	May-Jul 2014	Aug-Oct 2014
Issaquah TC	**97%**	**99%**	**91%**	**96%**	**93%**
Issaquah Highlands	97%	98%	91%	90%	95%
Tibbetts Lot	19%	30%	32%	49%	59%
Mukilteo Station	**86%**	**93%**	**65%**	**81%**	**92%**
Swamp Creek P&R	65%	73%	64%	55%	63%
Everett Station	65%	51%	70%	66%	67%
Sumner Station	**100%**	**100%**	**86%**	**88%**	**100%**
Bonney Lake P&R	63%	67%	71%	63%	70%
Tukwila Int'l Blvd Station	**99%**	**99%**	**94%**	**99%**	**94%**
Burien Transit Center	57%	56%	58%	62%	51%
TIBS SeaTac Center	n/a	13%	17%	13%	13%

4.2.5 Impacts on transit service

One of the intended outcomes of the parking permit pilot was to allow customers to arrive and travel at their desired time; a common complaint prior to the pilot was that customers had to arrive earlier than they wanted to travel in order to find an available parking space. The hypothesis was that guaranteed reserved parking would reduce the peak rush to arrive at the facility before it filled, and in turn reduce the peak loads on transit service departing from the facility. After reviewing ridership data from the Spring 2014 service change (February through June, 2014) and comparing it to the same period a year earlier, no clear change was observed. This may be due to the fact that only a portion of the parking spaces at each facility were dedicated to permit-holders, and thus the majority of spaces, which

remained free and available on a first-come, first served basis, were a greater determinant of the peaking of transit loads.

Ridership growth also occurred across all modes and lines served between spring 2013 and spring 2014. At three of the four locations, ridership growth at the facility level was lower than overall growth on the major routes/lines serving the facility. Importantly, however, facility-level ridership did not *decrease* at any of the pilot facilities. Reductions in transit service levels affected ridership as well, in particular at Issaquah Transit Center. Ridership there remained stable between the spring 2013 and 2014 service periods, despite a net reduction in weekday commuter service. Overall growth in ridership may also be the reason that there were no observable decreases in passenger loads during the morning peak period, as had been anticipated. (New riders may have taken the place of permit holders who arrived later, resulting in the same, or sometimes higher, average maximum loads.)

Although the number of parking spaces was, in effect, reduced at each facility by the number of permit holders that chose not to travel on any given day (from a handful to 50 or more spaces), **ridership did not decline**.

An important takeaway from the ridership data is that although the number of parking spaces was, in effect, reduced at each facility by the number of permit holders that chose not to travel on any given day (from a handful to 50 or more spaces), ridership did not decline.

Table 6. Facility and route/line ridership change at permit pilot facilities, spring 2013 to spring 2014

Location/Route	Facility ridership change	Route/Line ridership change
Issaquah Transit Center	0%	+4%
Mukilteo Station	+13%	+10%
Sumner Station	+5%	+7%
Tukwila Int'l Blvd Station	+8%	+13%

4.3 Limitations and lessons learned

The permit parking pilot project was limited (intentionally) in several ways:

- Duration: the pilot lasted six months, which was long enough to gain some understanding of short-term demand and utilization, but too short a time to observe long-term behavior change.
- Geography: the pilot was tested at four locations – a fraction of Sound Transit's park-and-ride facilities.
- Lot coverage: permitted spaces comprised no more than 40 percent of the spaces at each facility, and at the two largest facilities (Issaquah Transit Center and Tukwila International Boulevard Station), the proportion was closer to 25 percent.
- Rider market: permits were available only to customers who were already regularly using the facility (three times per week on average for three months prior to receiving a permit). Although most park-and-ride users are regular customers, this did limit the market to which permits or

reserved parking could be offered, excluding new riders, occasional riders, and those who would prefer to use the facility but are not due to lack of available parking.

Despite these limitations, and in some cases because of them, a great deal was gained in the pilot's implementation. Key takeaways from the permit pilot include:

- Demand for reserved parking exists and is perceived as valuable to many transit patrons.
- Pilot participants overall had very positive experiences with permits and would purchase them in the future.
- Interest in permits was highest at the locations that fill to capacity earliest.
- Demand for SOV permits was much higher than for HOV permits, despite the price incentive for HOV permits.
- HOV permits were most successful in the absence of SOV permit availability (at Sumner Station, where SOV permits sold out immediately).
- There are misperceptions about the reasons Sound Transit might charge for parking and concerns over the fairness of doing so.

Several programmatic limitations were also uncovered during the pilot phase. Table 7 describes the primary shortcomings of the pilot and offers potential solutions that could be addressed in a future program.

Table 7. Permit pilot shortcomings and potential solitons

Pilot shortcomings	Potential solutions
Interested customers can't obtain a permit due to ride history requirements	• Verify transit use after issuing permit • Remove location-specific transit use requirement • Remove transit use requirement altogether and/or offer a discount to confirmed transit users
1:1 permit to space ratio = unused spaces during AM peak	• End enforcement time earlier (e.g., 8:30 instead of 10:00 a.m., or location specific) to allow non-permit holders to fill spaces • Oversell permits, i.e., sell more than one permit per permitted space
Demand for permits > supply	• Increase permit price; price variations based on location, transit patronage, residence in/out of ST district • Permit more of lot/entire lot • Make permits valid at multiple facilities • Promote/incentivize HOV mode of access

4.4 Recommendations for future study/action

The permit parking pilot project demonstrated that under the right conditions, permits are an effective way of managing parking demand and increasing the number of transit riders served by a finite number of parking stalls. While a long-term permit product is useful to regular transit riders, it is not a good match for occasional riders. Staff therefore recommends continued study of daily parking fees as an option for less frequent riders who depend on parking for system access. At the same time, staff will use

the permit pilot findings, information about peer agency programs, and industry best practices to begin work on developing a permanent permit parking program to be brought back to the Board for consideration later in 2015.

Before a permit parking program can be implemented, the Board will need to establish pricing and will be asked to confirm a number of policy and program design elements prior to implementation, including:

- Enforcement: Sound Transit does not have legislative authority to issue citations or boot vehicles, which limits the tools available for enforcement to issuing warnings/towing. For full enforcement flexibility, Sound Transit may need to consider seeking legislative change or contracting parking management to a third party.
- Scope: What criteria will be used to select facilities for a permit program? How many parking stalls should be permitted and how many allotted for general use? What is the mix of SOV permits and HOV permits?
- Pricing: How much will permits cost? Will the program be revenue neutral or should it target recovery of additional operating revenue?
- Format and technology: Will permits be provided as hangtags? Will we ask users to register license plate numbers?
- Regional coordination: How will the permit program accommodate coordination of parking management strategies with partner transportation agencies and with local jurisdictions?

These efforts should be coupled with outreach efforts to gather feedback from customers and stakeholders and also to provide information about the benefits and purpose of parking management. A full Title VI analysis will also be completed during the program development phase to evaluate the impacts of a permit parking program on low income and minority transit customers and to develop mitigation strategies if needed.

5 Rideshare Collaboration Pilot

5.1 Project description

The Rideshare Collaboration Pilot project comprises two pilot efforts, both of which involve partnerships with the rideshare staff at Pierce Transit, King County Metro, and Community Transit. The first pilot effort is the VanShare Incentive Program. VanShare is a rideshare product designed to address the first and last-mile needs of people who want to take transit for their commute but whose homes or work locations are not close to transit. VanShare fills that gap by providing a rideshare vehicle with a fixed-rate monthly fare, limited mileage allowance, and in some cases a reserved parking space at a transit center. While VanShare has been a successful strategy for transit customers needing to access worksites within a few miles of a transit station, it has had limited success on the home end of the commute. Thus, the VanShare Incentive Program was developed to grow the home-end VanShare market by offering a discount on the fare and a reserved parking space at an ST facility. For the pilot project, Sound Transit offered to cover the full fare for the VanShare for six months and provided a reserved parking space for

the vehicle at the desired transit facility. Registration for the pilot was open for about six months, from late September 2014 through March 2015. VanShare incentives are available for any group wishing to use a Sound Transit facility, but in order to make the most of advertising budget, outreach efforts were focused on Sounder riders.

The Vanpool Relocation pilot project is the second rideshare collaboration project. This pilot seeks to relocate vanpool groups currently using crowded ST facilities as meet-up locations to less crowded parking facilities, thereby opening up additional spaces for transit patrons. The pilot offers a cash incentive for vanpool group members to change their meet-up location with the goal of permanently moving the meet-up location out of the crowded ST facility. Sound Transit is offering an incentive of $50/month for six months to each member of relocating vanpool groups, paid in the form of debit gift cards. This pilot is being tested at four locations: South Everett Freeway Station in Snohomish County, Federal Way and Overlake Transit Centers in King County, and Sumner Station in Pierce County. Vanpool Relocation efforts launched in January 2015 and registration was available through March 2015.

5.2 Findings

This section will be completed after the conclusion of the Rideshare Collaboration Pilot project.

5.3 Recommendations for future study/action

This section will be completed after the conclusion of the Rideshare Collaboration Pilot project.

6 Real-time Parking Availability Information Pilot

6.1 Project description

This pilot aims to provide customers with real-time parking occupancy information by installing vehicle counting equipment that automatically communicates occupancy data via the Sound Transit website. The Real-time Parking Availability Information Pilot is being tested at four facilities: South Everett Freeway Station in Snohomish County, Federal Way Transit Center and Auburn Station in King County, and Puyallup Station in Pierce County. Three technologies will be tested for accuracy, ease of installation and use, maintenance requirements, and usefulness of data produced both for Sound Transit customers and staff. The technologies tested are: magnetic loop detectors, ultrasonic directional sensors, and wireless roadway sensors (individual space monitors). Equipment installation took place from January-April 2015, and data is expected to be available to customers via the Sound Transit website starting in May.

6.2 Findings

This section will be completed after the conclusion of the Real-time Parking Availability Information Pilot project.

6.3 Recommendations for future study/action

This section will be completed after the conclusion of the Real-time Parking Availability Information Pilot project.

Appendix A

Permit Parking Pilot Project – Mid-Point Customer Survey Results

DRAFT

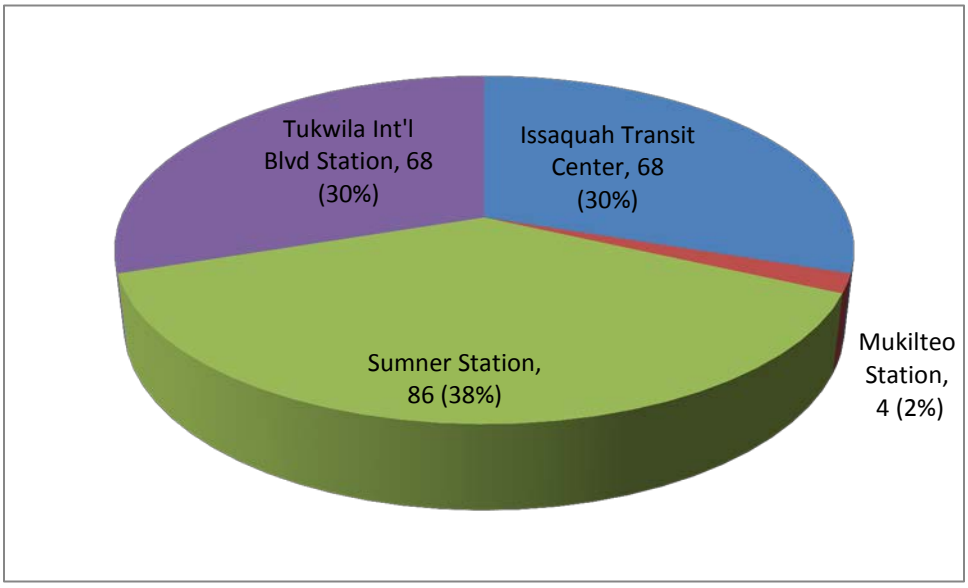
Parking Permit Pilot Participant Survey

Survey administered online June 5 – July 3, 2014
Responses: 226
Audience (~570 people) received email request to complete survey:

- *SOV & HOV permit holders from first and second quarters, including those who did not renew*
- *Registered carpool partners of HOV permit holders*

Response rate: 40%
Permits issued during 6-month pilot (February-July, 2014): 459 SOV, 56 HOV
Note: Percentages may not add to 100% due to rounding and/or multiple responses allowed.

1. Which facility is/was your permit for?



2. What type of permit did/do you have?

Location	SOV	HOV
Issaquah Transit Center	63	4
Mukilteo Station	3	1
Sumner Station	60	26
Tukwila Int'l Boulevard Station	65	2
Total	**191**	**33**

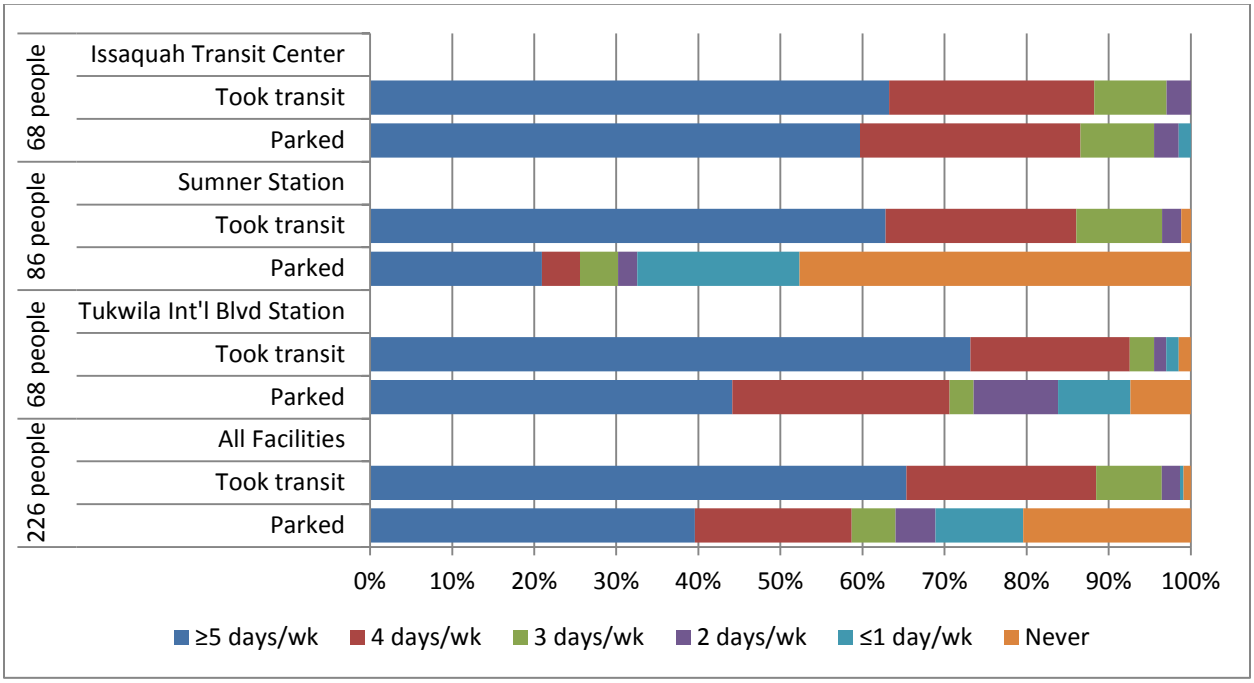
3. How did you learn about the permit pilot?

	Issaquah Transit Center	Mukilteo Station	Sumner Station	Tukwila Int'l Blvd Station	Total
Station advertising/signage	61	3	64	61	**189**
Word of mouth			12	1	**13**
E-mail alert	4	1	3	1	**9**
Sound Transit website			5	3	**8**
Other	3		2	2	**7**

4. After you received a permit, did you ride transit from this facility more often, about the same, or less often than before?

	Issaquah Transit Center	Mukilteo Station	Sumner Station	Tukwila Int'l Blvd Station	Total
More often than before	6	1	13	11	**31**
About the same as before	60	3	72	55	**190**
Less often than before	2		1	2	**5**

5. On average, how often did you take transit/park at the permit facility before the start of the permit pilot?



Note: Mukilteo Station not shown individually due to low number of responses (4 people).

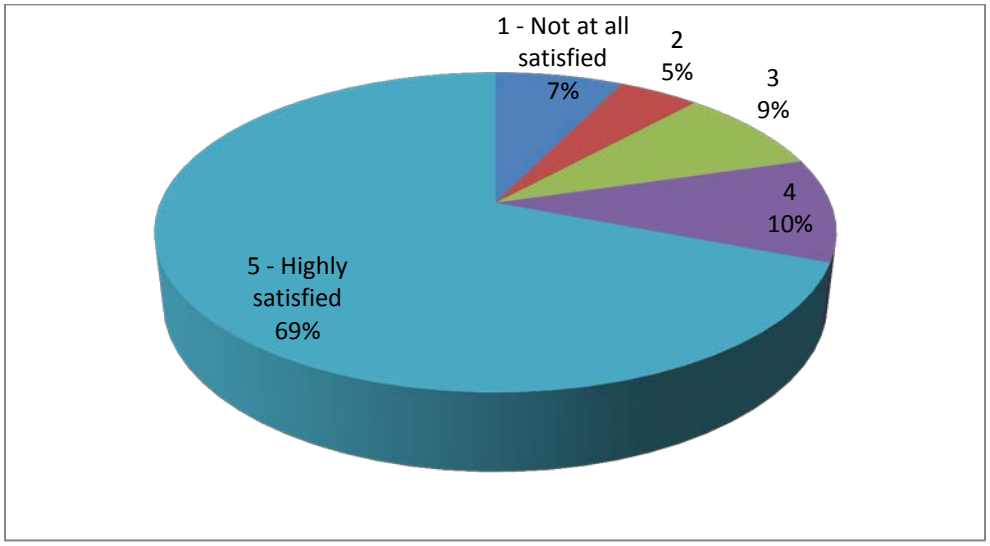
6. Before the start of the permit pilot, when you did not park in the parking lot, did you still drive?

	Issaquah Transit Center	Mukilteo Station	Sumner Station	Tukwila Int'l Blvd Station
No, I did not drive.	26		7	20
Yes, I drove all the way to my destination/to work.	21	1	2	21
Yes, I usually parked in another lot.	6		16	11
Yes, I usually parked on the street.	2	1	55	8
Yes, I usually parked somewhere else.	6		5	5

7. Before the start of the permit pilot, when you did not drive, how did you get to the facility? (Mark all that apply.)

	Count	Percent
Got dropped off	41	18%
Didn't use facility	21	9%
Took transit	21	9%
Walked	8	4%
Rode in carpool	4	2%
Rode a bicycle	4	2%

8. Please rate your overall satisfaction with the permit pilot on a scale of 1-5, 5 being highest.



9. What is the most important benefit of having a permit?

	Issaquah Transit Center	Mukilteo Station	Sumner Station	Tukwila Int'l Blvd Station	Total
Certainty of finding a space	17	4	44	33	98
Access to preferred parking	29		8	4	41
Reduces stress	5		7	8	20
Ability to catch later bus/train	4		7	5	16
Multiple responses/other	3		9	4	16
Reduces time spent commuting	4		7	1	12
Greater flexibility	2		3	5	10
No benefit	4			4	8

10. If Sound Transit decided to implement a permit program permanently, what would you change from the pilot?

	Count	Percent
Less of the facility dedicated to permits	33	15%
More of the facility dedicated to permits	44	19%
Signage/permit parking designation	33	15%
Application/renewal process	50	22%
Eligibility criteria - more strict (longer ride history or more rides per week)	43	19%
Eligibility criteria - less strict (shorter ride history or fewer rides per week)	28	12%
Pricing - lower	52	23%
Pricing - higher	22	10%
Make permit valid at multiple facilities	57	25%
Nothing	22	10%
Other	41	18%

Note: Multiple responses allowed.

11. If Sound Transit decided to implement a permit program permanently, would you support it?

	Issaquah Transit Center	Mukilteo Station	Sumner Station	Tukwila Int'l Blvd Station	Total
Yes	38	4	68	40	150
Yes, with some changes/reservations	9		10	11	30
Yes, with major changes			3	1	4
No	13		2	6	21
I don't know/not sure	5		2	7	14

Appendix B

Permit Parking Pilot Project – Follow-up Customer Survey Results

DRAFT

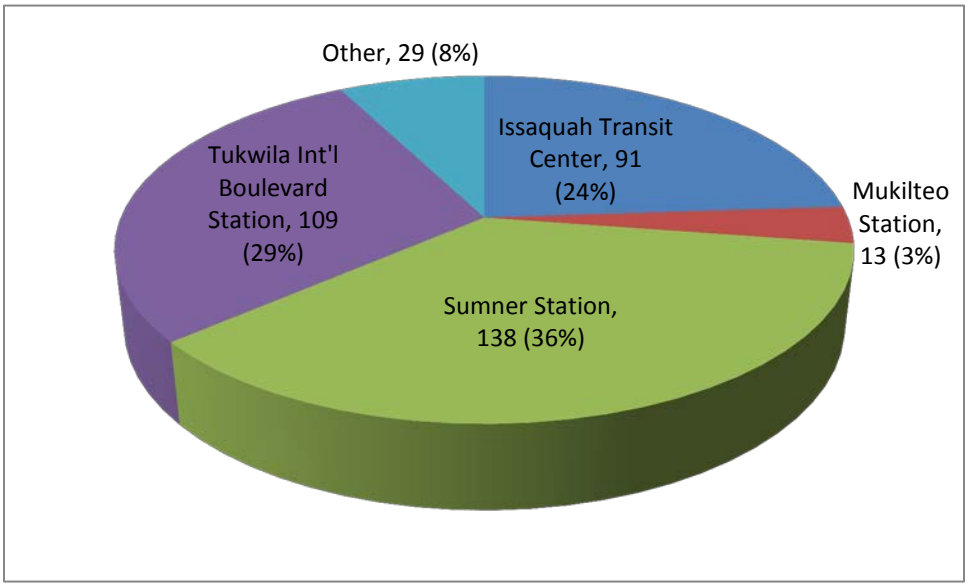
Parking Permit Pilot Follow-Up Survey

Survey administered online October 28-November 24, 2014
Responses: 380
Audience (1,510 people) received email request to complete survey:

- *Permit applicants and carpool permit co-applicants (including those not issued permits)*
- *Those who had contacted Sound Transit by email to comment on the permit pilot*
- *Those who signed up for Sound Transit email alerts about Parking Policy Updates*

Response rate: 25%
Permits issued during 6-month pilot (February-July, 2014): 459 SOV, 56 HOV
Note: Percentages may not add to 100% due to rounding and/or multiple responses allowed.

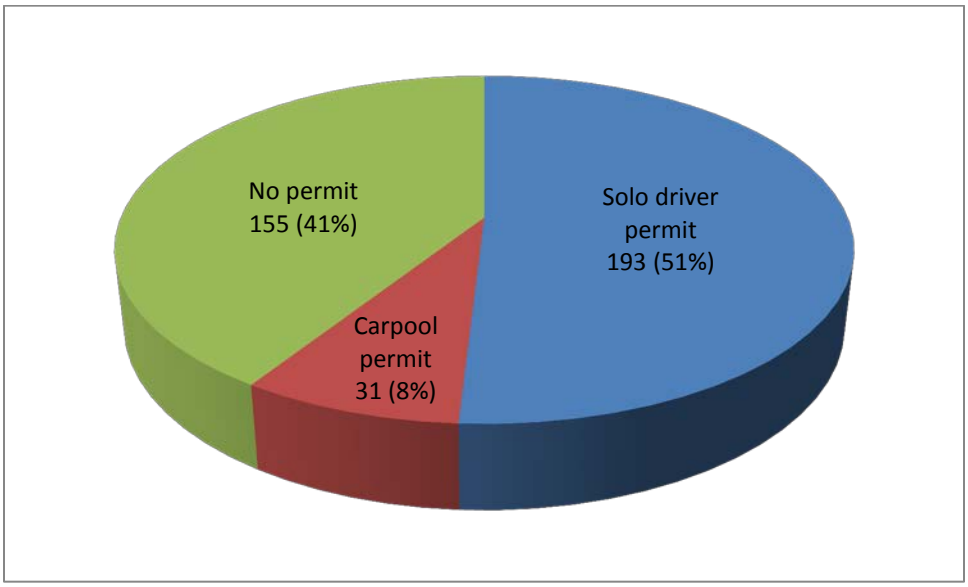
1. Which transit facility did you use most often during the permit parking pilot (February-July 2014)?


Other, 29 (8%)
Issaquah Transit Center, 91 (24%)
Mukilteo Station, 13 (3%)
Sumner Station, 138 (36%)
Tukwila Int'l Boulevard Station, 109 (29%)

2. What other stations/park-and-rides do you use?

Primary location	None	Listed alternate	Common alternates listed
Issaquah Transit Center	70%	30%	Eastgate Park-and-Ride, Issaquah Highlands
Mukilteo Station	69%	31%	Swamp Creek Park-and-Ride
Sumner Station	70%	30%	Bonney Lake Park-and-Ride, Puyallup Station
Tukwila Int'l Boulevard Station	71%	29%	Tukwila Park-and-Ride

3. Did you have a permit during the permit pilot project?



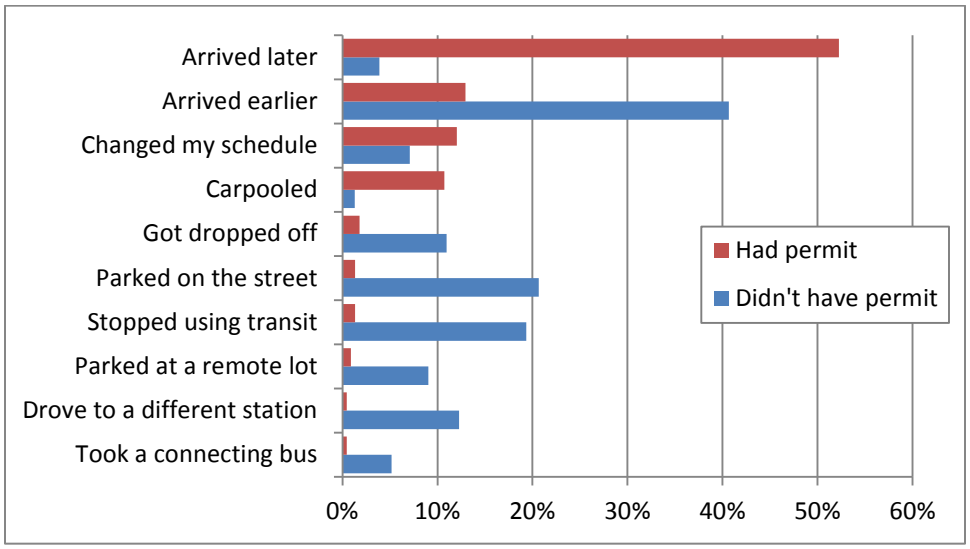
a. Carpool permit holders only: Since the permit pilot ended, have you continued to carpool?

Response	
No. We stopped carpooling because we didn't have a permit.	11| 35%
No. We stopped carpooling for another reason.	6 | 19%
Yes, about as often as during the pilot.	8 | 26%
Yes, but less often than during the pilot.	5 | 16%
Yes, but more often than during the pilot.	1 | 3%

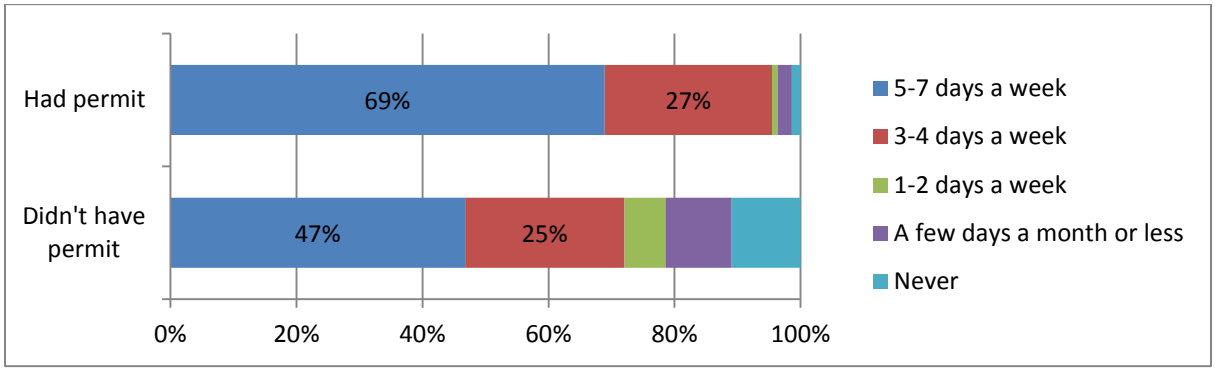
b. Non-permit holders only: Why didn't you purchase a permit?

Response	
I wanted to but was denied based on eligibility.	41 | 27%
I didn't want to/wasn't interested.	35 | 23%
I wanted to but they were sold out.	29 | 19%
It was too expensive/not worth the cost.	17 | 11%
I wanted to but it was too late.	13 | 8%
Didn't use a permit pilot facility	11 | 7%
I didn't know how.	8 | 5%

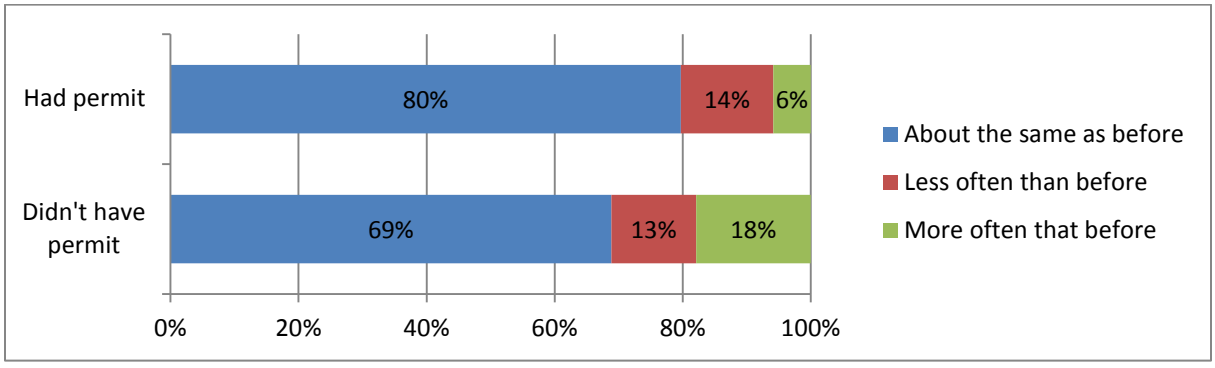
4. During the parking permit pilot, did you make any of the following changes? (Mark all that apply.)



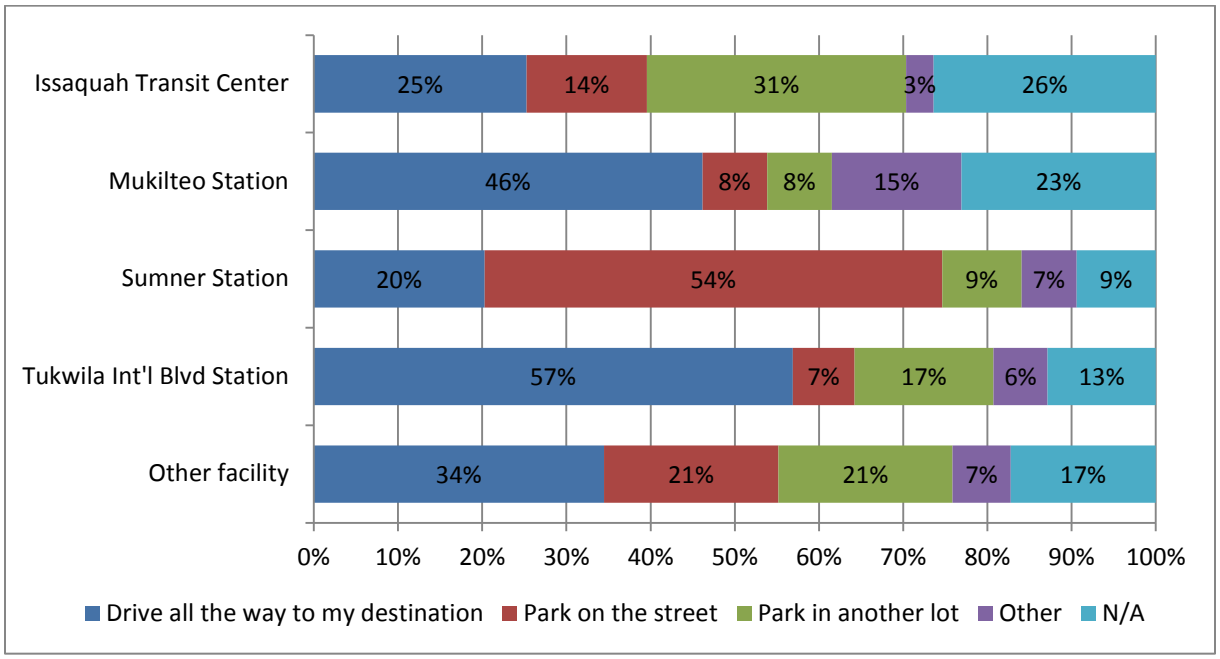
5. On average, how often do you currently (post pilot) take the train or bus from this facility?



6. Compared to February through July (during the permit pilot), do you currently take transit:

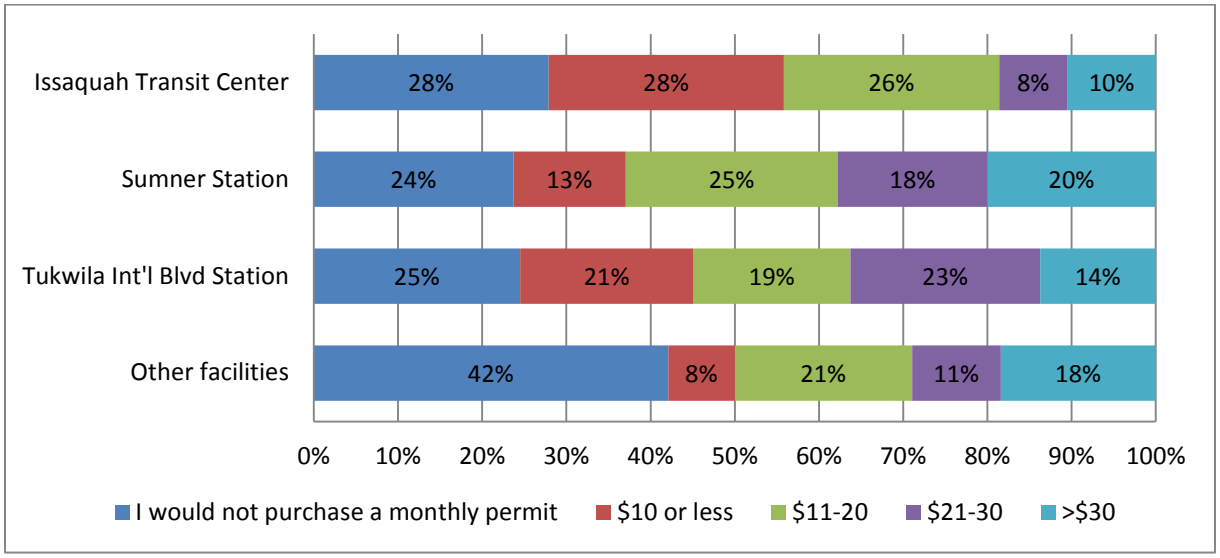


7. If you drive to the station/park-and-ride and can't find a parking space, what do you do?



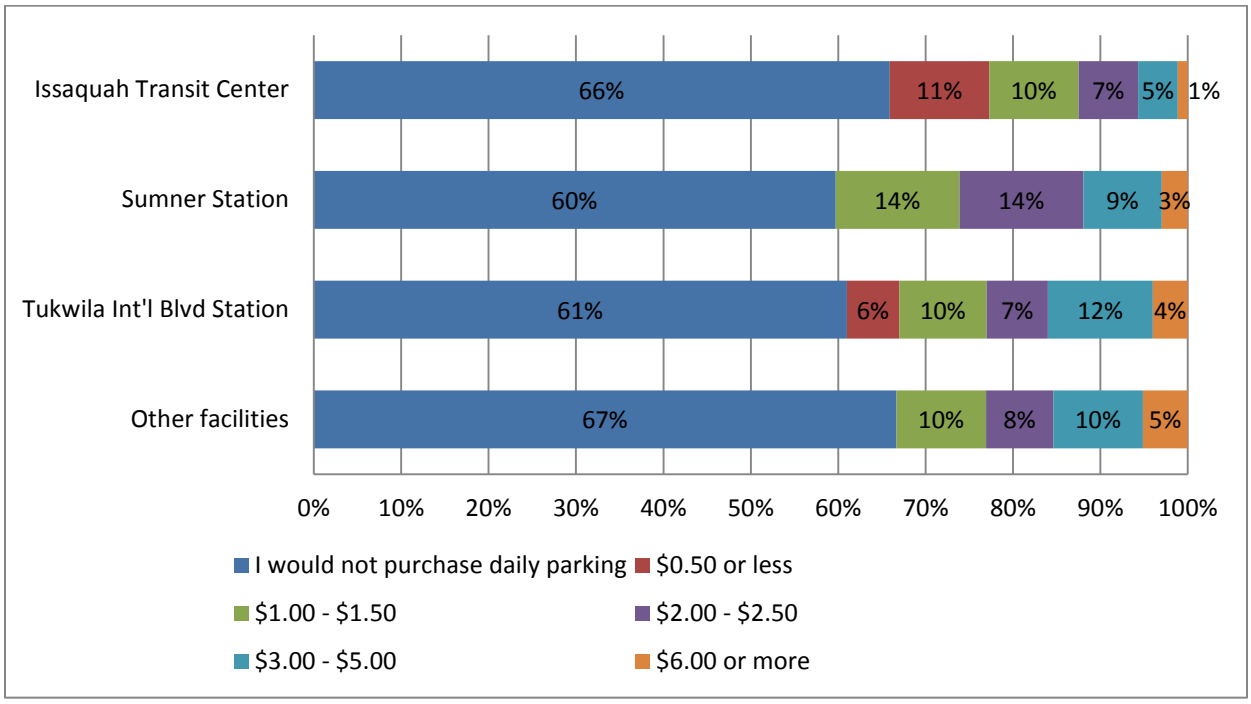
Note: N/A: Does not apply because respondent does not drive to the station or respondent is always able to find parking.

8. What would you be willing to pay per month for a reserved parking space at this facility?



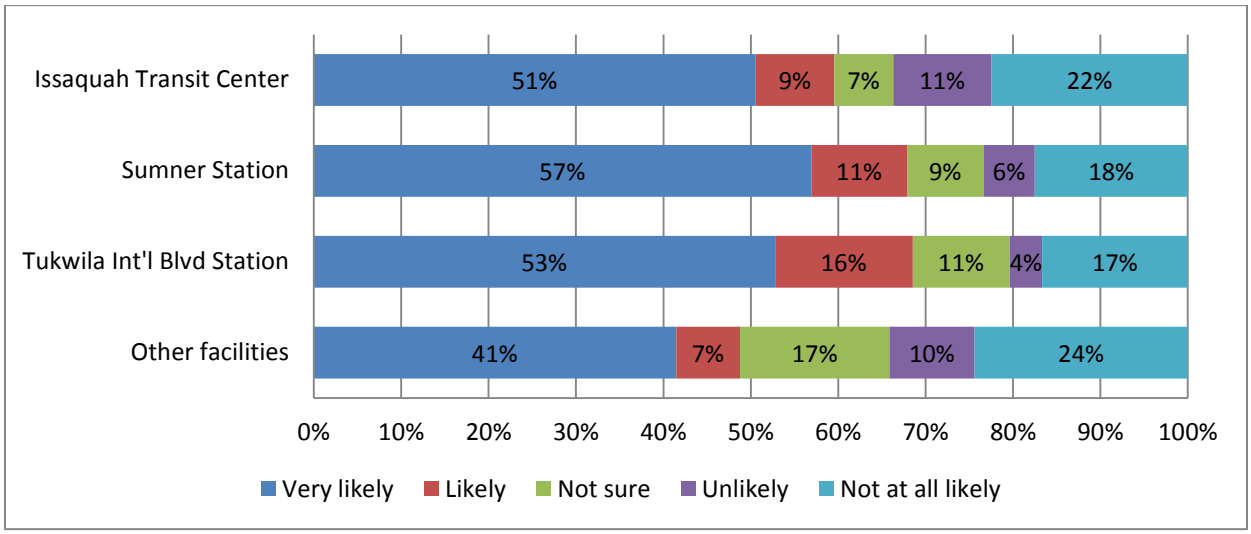
Note: Mukilteo Station combined with other facilities due to low number of responses.

9. What would you be willing to pay per day for a reserved parking space at this facility?



Note: Mukilteo Station combined with other facilities due to low number of responses.

10. If permits were made available again, how likely would you be to purchase one?



Note: Mukilteo Station combined with other facilities due to low number of responses.

11. If only carpool permits were available (no solo driver permits), would you consider purchasing one? (You would need two transit riders to qualify for a carpool permit.)

Location	Yes	No	I don't know
Issaquah Transit Center	5 | 6%	70 | 79%	14 | 16%
Mukilteo Station	3 | 23%	8 | 62%	2 | 15%
Sumner Station	30 | 22%	89 | 65%	18 | 13%
Tukwila Int'l Blvd Station	11 | 10%	82 | 77%	14 | 13%
Other	1 | 4%	24 | 89%	2 | 7%
Total	50 | 13%	273 | 73%	50 | 13%

a. "No" and "I don't know" responses to Question 11 only: What is the reason you might not consider purchasing a carpool permit (mark all that apply):

Reason	No (273 people)	I don't know (50 people)
I don't have a carpool partner	168 | 62%	32 | 64%
My schedule is too unpredictable to carpool	141 | 52%	17 | 34%
I don't want to carpool	72 | 26%	5 | 10%
No one lives near me	47 | 17%	4 | 8%
Childcare/other activities prevent me from carpooling	46 | 17%	8 | 16%
I wouldn't purchase any type of permit	37 | 14%	1 | 2%
I don't know how to find a carpool partner	16 | 6%	9 | 18%

Who completed this survey?

Station used during permit pilot	SOV permit	HOV permit	No permit	Total
Issaquah Transit Center	67	3	21	91
Mukilteo Station	5	2	6	13
Sumner Station	60	25	52	137
Tukwila Int'l Boulevard Station	61	1	47	109
Other	0	0	29	29
Total	193	31	155	379

Others: Auburn Station, Kent Station, Everett Station, Lynnwood Transit Center, Puyallup Station, South Everett Freeway Station, Tacoma Dome, 145th Street, Burien Park and Ride, Eastgate Park & Ride, Edmonds Station, Federal Way Transit Center, Mercer Island Park-and-Ride, Redmond, Seatac
Note: One respondent indicated using Sumner Station during pilot but did not indicate permit status, so the total number of respondents is actually 380.